BT SQUARED
CIVIL & ENVIRONMENTAL ENGINEERING

2830 Dairy Drive
Madison, WI 53718

p 608.224.2830
f 608.224.2839

ENERGY PROJECT RESOURCES

We have assembled some additional resources to help you with your energy projects. If you need specific assistance, or you would like to conduct an energy audit, please feel free to contact us. We can help!

UTILITY RATES

- Alliant Electric Rates / Alliant Natural Gas Rates
- MGE Electric Rates / MGE Natural Gas Rates
- We Energy Rates

DOE SOFTWARE TOOLS

- The Quick Plant Energy Profiler, Version 2.0, is an online software tool that helps quickly diagnose how energy is being used in the plant and the largest opportunities to save energy and money. This tool is your first step in identifying areas for potential savings.
- Process Heating Assessment and Survey Tool (PHAST), Version 2.0, introduces methods to improve thermal efficiency of heating equipment. This tool helps users survey process heating equipment that consumes fuel, steam, or electricity and identifies the most energy-intensive equipment. Use the tool to compare performance of equipment under various operating conditions and test 'what-if' scenarios.
- AIRMaster+ LogTool, Version 2.0, is a companion tool to AIRMaster+ that helps users determine the operating dynamics of a compressor system. Use the LogTool first to gather critical data in preparation for AIRMaster+. Then you can input that data into AIRMaster+ to model existing and future compressed air system upgrades.
- AIRMaster+, Version 1.2.3, provides comprehensive information on assessing compressed air systems, including modeling, existing and future system upgrades, and evaluating savings and effectiveness of energy efficiency measures.
- DOE Compressed Air Challenge
- Combined Heat and Power Application Tool (CHP) helps users evaluate the feasibility of using gas turbines to generate power and the turbine exhaust gases to supply heat to industrial heating systems. It allows analysis of three typical systems types: fluid heating, exhaust-gas heat recovery, and duct burner systems. Use the tool to estimate energy savings, system costs, and payback period, and to perform "what-if" analysis for various utility costs.
- Steam System Tool Suite. If you consider potential steam system improvements in your plant, the results could be worthwhile. Steam System improvements can save 10% to 20%

in fuel costs in many facilities. DOE offers a suite of tools for evaluating and identifying steam system improvements.

- Steam System Scoping Tool is designed to help the steam system energy manager and operations personnel to perform initial self-assessments of their steam systems. This tool will profile and grade steam system operations and management and help you evaluate your steam system operations against best practices. See Fact Sheet (pdf) for more information.

- Steam System Assessment Tool (SSAT), Version 3, allows steam analysts to develop approximate models of real steam systems. Using these models, you can apply SSAT to quantify the magnitude - energy, cost, and emissions-savings of key potential steam improvement opportunities. SSAT contains the key features of typical steam systems.

- 3E Plus®, Version 4.0, calculates the most economical thickness of industrial insulation for user input operation conditions. You can make calculations using the built-in thermal performance relationships of generic insulation materials or supply conductivity data for other materials.

- MotorMaster+ Version 4.0.6. An energy-efficient motor selection and management tool, MotorMaster+ software includes a catalog of over 20,000 AC motors. This tool features motor inventory management tools, maintenance log tracking, efficiency analysis, savings evaluation, energy accounting, and environmental reporting capabilities. See Fact Sheet (pdf) for more information.

- MotorMaster+ International 1.0.15. MotorMaster+ International includes many of the capabilities and features of MotorMaster+; however, now you can evaluate repair/ replacement options on a broader range of motors, including those tested under the Institute of Electrical and Electronic Engineers (IEEE) standard, and those tested using international Electrical Commission (IEC) methodology. See Fact Sheet (pdf) for more information.

- Improving Process Heating System Performance: A Sourcebook for Industry, Second Edition (pdf) provides information on activities, resources, applications, standards, and guidelines for increasing industrial energy efficiency.

BEST PRACTICE PROCESS HEATING TIP SHEETS

Quick and to the point, these two-page tip sheets give engineers, technicians, equipment operators, and others technical advice to improve process heating systems:

- Check Burner Air to Fuel Ratios (pdf)
- Check Heat Transfer Surfaces (pdf)
- Furnace Pressure Controllers (pdf)
- Install Waste Heat Recovery Systems for Fuel-Fired Furnaces (pdf)
- Load Preheating Using Flue Gases from a Fuel-Fired Heating System (pdf)
- Oxygen-Enriched Combustion (pdf)

- Preheated Combustion Air (pdf)
- Reduce Air Infiltration in Furnaces (pdf)
- Reduce Natural Gas Use in Your Industrial Process Heating Systems (pdf)
- Reduce Natural Gas Use in Your Industrial Steam Systems (pdf)
- Reduce Radiation Losses from Heating Equipment (pdf)
- Save Energy Now in Your Process Heating Systems (pdf)
- Use Lower Flammable Limit Monitoring Equipment to Improve Process Oven Efficiency (pdf)
- Using Waste Heat for External Processes (pdf)

BEST PRACTICES TIP SHEETS

- Steam
- Motors
- Compressed Air
- Pumping

NATURAL GAS

- Reduce Natural Gas Use in Your Industrial Process Heating Systems (pdf)
- Reduce Natural Gas Use in Your Industrial Steam Systems (pdf)

ENERGY EFFICIENCY AND SAVINGS TOOLS

FIA and FIERF have partnered with the U.S. Department of Energy's (DOE) Industrial Technologies Program to help members increase their energy efficiency and decrease costs. See below for resources available through the program.

Discover your plant's Energy Savings Potential by taking this quick on-line test developed by the DOE.

CASE STUDIES

The industrial Systems listed below can account for a large part of the energy used in manufacturing processes. System improvements and new technologies can help save energy and money. These case studies describe demonstrated energy improvement projects, process improvement projects, and/or assessments at the plant level. Many examine the bottom-line benefits that successful applications of energy-efficient practices and technologies can yield.

- Compressed Air
- Motors
- Process Heating
- Pumping Systems
- Steam
- Multiple Systems
- Other Systems
- DOE's Industrial Technologies Program in Wisconsin
- EPA Climate Change / EPA Greenhouse Gas Equivalencies Calculator

BUILDING CERTIFICATIONS

- Green Globes
- Energy Star Plants and Buildings
- LEED

SUSTAINABILITY LEADERS

- Walmart
- Pepsico
- Frito Lay
- Kraft

FINANCIAL OPPORTUNITIES

- DOE Financial Opportunities
- Focus on Energy
- Wisconsin Energy and Conservation Block Grants
- Wisconsin Diesel Idling Reduction Grant Program

Sincerely,
BT Squared, Inc.

John Hurtenbach, CHMM, CEM
Senior Environmental Scientist
608.216.7365
jhurtenbach@btsquared.com

JH/jsn